

REMARKS

Appreciation is hereby expressed to Examiners Wells and Padmanabhan, for the interview so courteously and professionally conducted on April 8, 2003. In accordance with the discussions held during said interview, arguments are presented below, and the Declaration of Mr. Tanaka filed May 22, 1996, and Amendment filed therewith, in parent application serial No. 07/969,176, is presented herewith, to obviate the rejections. Claims 1-17 and 23 are in the application.

Reconsideration is respectfully requested of the rejection of claims 1-11 and 23 under 35 U.S.C. §103(a) as being unpatentable over Kohlschutter, et al. (3,922,392).

The Kohlschutter, et al. reference was cited in the parent application serial No. 07/969,176. On March 28, 2001, the present Continuation-In-Part application was filed, which was believed to distinguish from the Kohlschutter, et al. reference, as the first Office Action issued herein did not maintain the rejections based thereon of the parent application.

The Kohlschutter reference discloses a method for coating non-porous particles, such as glass, synthetic resins, metal and metallic oxides or non-porous scaly material such as kaolin and

mica with a porous SiO_2 layer. During the first step of production of the Kohlschutter et al. reference, the aforementioned non-porous materials are coated with a polymeric alkoxysiloxane, and a thin layer of polymeric alkoxysiloxane is formed on the surfaces of the non-porous material. In the second step of the Kohlschutter et al. reference, the layer of polymeric alkoxysiloxane is hydrolyzed, at which time the hydrolysate condenses (hydrolytic polycondensation) and a porous layer of a polysilic acid is formed. Accordingly, SiO_2 in **spherical form** is never produced in the process of the Kohlschutter et al. reference.

The Kohlschutter et al. reference discloses conventional means in which polysilicic acid particles are deposited onto the surfaces of materials to produce a porous SiO_2 layer. In this conventional process, by using a dispersion of colloidal silica particles, such as silica sol, dense packing of the particles is formed on the surfaces of the materials, and by dehydration the particles gel and aggregate and a porous SiO_2 layer is produced. The layer which is produced according to the Kohlschutter et al. reference is not discrete spherical SiO_2 particles, such as that obtained in the present invention.

Moreover, the layer produced by the process of Kohlschutter et al. does not keep its original form of particles, and is in fact in an irregular form of a porous layer. In this regard, the Examiner's

attention is directed to the new subject matter added in this continuation-in-part application which shows in the photomicrograph of Fig. 11 that the spherical silica particles in the present invention are non-porous and that there is no air void at the surface of or in the spherical silica. Thus, the present invention provides a regular non-porous layer of spherical silica particles on the flaky or scaly base.

It is respectfully submitted that there is no disclosure or suggestion in the Kohlschutter, et al. reference as to how to immobilize securely and effectively nonporous spherical silica particles on the surface of mica as the base material with the claimed limitation to the permittivity (E), and specific ION concentration (N). On the contrary, that teaching or suggestion which constitutes an important aspect or element of the present invention can be found only in the present application.

It is further respectfully submitted that there is no disclosure whatever in the Kohlschutter et al. reference of a method or product obtained wherein a flaky or scaly base has non-porous spherical silica particles coated thereon which have been immobilized on the surface of the base by hydrolyzing a non-polymeric alkoxysilane thereon and/or gelling said a silicic acid solution thereon. On the contrary, that disclosure comes only from the present application and constitutes an important element or

aspect of the present invention.

Previously in the parent application, in order to demonstrate the unexpected properties of the present invention, comparative tests were conducted, and a Declaration describing the tests comparing the coated flaky substrates of the present invention with those of the Kohlschutter, et al. reference, the results thereof, and executed by Mr. Tanaka, was presented in the parent application on May 22, 1996. A copy of said Declaration is attached hereto, as well as the Amendment filed therewith. In view of the test data and results set forth in that Declaration, it is clear that the coated flaky substrates of the present invention have entirely different light scattering properties of reflected light as compared to the compositions of Kohlschutter, et al.

This Declaration also demonstrates that the light scattering reflected light of the coated flaky substrates of the present invention provides an improvement over the prior art coated substrates made according to the Kohlschutter, et al. reference. For these reasons, it is respectfully submitted that it would NOT have been obvious to one of ordinary skill in the art at the time the invention was made to substitute one nonporous material for the other, and any suggestion that the properties of the coated substrate of Kohlschutter, et al. would be inherent in the coated substrates produced according to the present invention, is hereby

preemptively rebutted.

Moreover, there is no disclosure in the (Kohlschutter, et al. reference of immobilizing the non-porous spherical silica particles and a dispersion which has a permittivity in a particular range and ion concentration in a particular range, as claimed herein. On the contrary, these features are nowhere disclosed in Kohlschutter, et al. or any of the other references of record. In addition, as discussed with Examiner Wells and Supervisory Examiner Padmanabhan, Kohlschutter, et al. appear to employ polymeric alkoxy silane in their inventive method, whereas the present invention may use non-polymeric alkoxy silane to achieve an unexpectedly improved result.

In view of the arguments set forth above, as well as the test data provided and explained in the attached Declaration, it is respectfully submitted that the Kohlschutter, et al. reference fails to anticipate or render unpatentably obvious the subject matter of these claims. Consequently, the Examiner would be justified in no longer maintaining this rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of claims 1-23 under 35 U.S.C. 103(a), as being unpatentable over Kohlschutter, et al. as applied to claims 1-11 and 23 above, and further in view of Bernhard (4,509,988).

The cited Kohlschutter, et al. reference is discussed above and the other references in the rejection were amply discussed in the amendment filed December 29, 1997, in the parent application. In that amendment it was pointed out that the layers of silica particles disclosed in the Bernhard and Kohlschutter, et al. references comprise particles which have irregular form and/or different grain sizes, as opposed to the spherical, regular, nonporous silica particles produced in the present invention.

The cited Bernhard reference discloses nacreous pigments having improved light fastness which are based on mica flakes coated with metal oxides. To produce these pigments, mica is coated in an aqueous suspension by co-precipitation of a titanium dioxide hydrate, iron hydroxide and silicon dioxide, whereby the metal oxide layer is formed on the surface of mica as a homogeneous mixed layer in which TiO_2 , SiO_2 and Fe_2O_3 are present. Like the particles of Kohlschutter, et al. the homogeneous layer of the Bernhard reference is a layer comprising an aggregation of primary particles formed by hydrolysis of the aforementioned compounds, and it has an irregular form.

Evidence of unexpected superiority in one of a spectrum of common properties can rebut a prima facie case of obviousness. Ex parte Kohlass 38 PTCJ 408 (BPAI 1989). Further, where no improvement in properties would be expected by one skilled in the

art, compounds whose activity is three to five times better than the prior art compound differ in kind rather than degree there from. In re Risse, et al. 378 F2d 948, 154 USPQ 1 (CCPA 1967); In re Lunsford 357 F2d 380, 148 USPQ 716 (CCPA 1966).

The layers of spherical silica particles disclosed in the Bernhard and Kohlschutter et al. reference comprise particles which have irregular form and/or different grain sizes. In contrast, the present invention provides a surface layer comprising particles which have a spherical form and flat grain size. As such, the flaky, fine powder of the present invention is provided with the unexpected and superior property of homogeneous light distribution, as illustrated in Figs. 6-8 and 10. This unexpected result was further demonstrated in the declaration under 37 CFR 1.132 filed May 22, 1996, as well as in the new subject matter presented in this CIP application in Fig. 11, which shows that the silica particles are spherical and non-porous, and that there is no air void at the surface or in the spherical silica.

It is respectfully submitted that these showings in the Declaration, and in the newly added subject matter in the instant CIP application, clearly establish non-obvious patentable differences between the claimed product and the prior art product. It is also submitted that the (re)submission of this evidence clearly rebuts any prima facie case of obviousness based on the

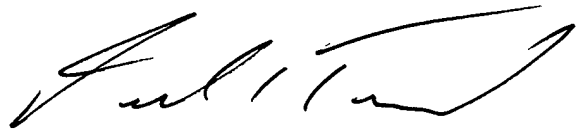
prior art of record.

In view of the above legal authorities, the Declaration attached hereto, and the arguments set forth above, it is believed that the Examiner would be justified, as a matter of law, in no longer maintaining this rejection. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted,

TOWNSEND & BANTA

A handwritten signature in black ink, appearing to read "Donald E. Townsend". The signature is fluid and cursive, with a large loop at the end.

Donald E. Townsend
Reg. No. 22,069

A handwritten signature in black ink, appearing to read "Donald E. Townsend, Jr.". The signature is cursive and somewhat stylized.

Donald E. Townsend, Jr.
Reg. No. 43,198

LAW OFFICES OF TOWNSEND & BANTA
Suite 900, South Building
601 Pennsylvania Ave., N.W.
Washington, D.C. 20004 USA

Phone: 202-220-3124

Date: April 24, 2003

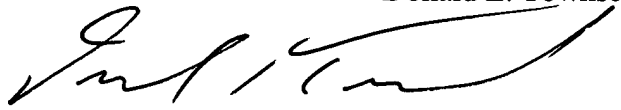
CERTIFICATE OF MAILING

I hereby certify that this correspondence, consisting of an Amendment and 1 Month Petition for Extension of Time, as well as a check in the amount of \$110, is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Assistant Commissioner for Patents
Washington, D.C 20231

On April 24, 2003.

Donald E. Townsend



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
H. Tanaka, et al.

Serial No.: 07/969,176

Art Unit: 1501

Filed: February 12, 1993

Examiner: R. Harrison

For: Cosmetics Comprised of a Flaky, Fine Powder and
Method of Production

AMENDMENT PURSUANT TO 37 C.F.R. § 1.116

BOX ISSUE FEE

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Responsive to the official Office Action mailed January 2, 1996 (the time for response to which having been extended by virtue of a petition under 37 C.F.R. §1.136(a) and requisite fee filed herewith), in the matter of the above identified application, kindly amend the same as follows:

IN THE CLAIMS:

Kindly amend Claim 3 as follows:

In Claim 3, line 5, please delete "plate-like" and insert -- platelet shaped--.

REMARKS

Appreciation is hereby expressed to Examiner Harrison for the interview so courteously granted on February 9, 1996. Pursuant to that interview, Claim 3 has been amended to more definately set

forth the invention and obviate the objectionable language of "plate-like". In addition, comparative tests have been conducted, as discussed at the interview, and these tests and test results are set forth in a Declaration of Mr. Hirokazu Tanaka as described hereinafter. The present amendment is deemed not to introduce new matter. Claims 1-10, 13, 16-21, 24 and 27-29 remain in the application.

Reconsideration is respectfully requested of the rejection of Claims 1-10, 13, 16-21, 24 and 27-29 under 35 U.S.C. § 102(b) as being anticipated or identically disclosed by Kohlschutter et al. (U.S. Patent No. 3,922,392). As urged at the interview, the Kohlschutter et al. reference fails to disclose the essential aspects of the invention, namely, a flaky, fine powder with spherical silica particles coated on platelet shaped scaly base having a thickness of about $1\mu\text{m}$ or less and method of producing the same. The passage in the Kohlschutter et al. reference relied upon by the Examiner states:

"The layer thickness can be varied within wide limits. Generally, it ranges between 0.1 and 100μ and is dependent, particularly when coating small particles, on the particle diameter. In the case of spherical particles, the layer thickness generally will be about $1/10$ to $1/500$ of the diameter of the solid bodies. In the case of glass spheres having a diameter of 30-40 μ , for example, a layer thickness of about 0.1-1.0 μ is preferred."

Applicant urged at the interview and still respectfully maintains that the above quoted passage from the Kohlschutter et al. reference at column 3, lines 36-43, clearly states that the coating

is applied to a spherical substrate not vice versa. It is respectfully urged that there is no disclosure in this or any other passage in the Kohlschutter et al. reference of a flaky, fine powder comprised of spherical silica particles coated on a scaly base having a thickness of about 1 μ m or less and selected from the group consisting of natural mica, talc, platelet shaped titania and glass flakes and process of producing the same. On the contrary, that teaching or suggestion comes only from the present application and constitutes an important element or aspect of the present invention.

To point out the differences between the product and process of the present invention and the product and process disclosed in the Kohlschutter et al. reference, comparative tests were discussed at the interview and the Examiner is thanked for his suggestions in this regard. It was understood at the interview that any comparative tests should compare the product and process of the present invention with the closest prior art i.e., the closest disclosure in the Kohlschutter et al. reference. Accordingly, such comparative tests have been conducted as set forth in the Declaration of Mr. Hirokazu Tanaka dated April 15, 1996, the original of which is attached hereto and made a part hereof.

In his declaration, Mr. Tanaka indicates in paragraph 4 that he has conducted or had conducted under his direction comparative tests between the invention claimed in the present application and the closest embodiment in the Kohlschutter et al. reference. In

paragraph 4.1 Mr. Tanaka indicates that the procedure described in Example 1 of the present application was repeated to coat mica flakes with silica, designated as Sample F. This procedure was carried out in the same manner as described in Example 1 of the present application, except that silica organosol was not used. In this procedure, tetraethoxysilane and 28% aqueous ammonia were added simultaneously in 500g of ethanol dispersion containing 80g of natural mica, at a temperature of 45°C and pH 9.5. The quantity of added tetraethoxysilane was 13.3g in terms of SiO_2 .

After this mixture was stirred for two hours, the dispersion was filtered, washed and then dried at 100°C and then calcined for four hours at 600°C, producing silica coated mica flakes, designated Sample G. In his declaration, Mr. Tanaka specifically indicated that it was his belief that mica is a closer base material than glass spheres used in example 1 of the Kohlschutter et al. reference, and that Sample G is the closest embodiment in the Kohlschutter et al. reference, since mica is disclosed as the base material to be coated with silica at column 2, line 12.

In paragraph 4.2 of his declaration Mr. Tanaka then describes tests conducted on Samples F and G to measure scattering of reflected light. The method of measurement of scattering of reflected light is described in the specification herein on page 26, lines 7-13. The results of these tests were plotted in Figures 1 and 2 of the declaration of Mr. Tanaka. The results for Sample F (the present invention) are shown in Figure 1 and the results for

Sample G (Kohlschutter et al. reference) are shown in Figure 2.

On the basis of these test results, it is respectfully submitted that the product of the present invention unexpectedly exhibits a homogeneous distribution of reflected light. In contrast, the product produced according to the Kohlschutter et al. reference exhibited a non-homogeneous distribution of reflected light, as shown in Figure 2. For this reason, it is respectfully submitted that the tests set forth in the Tanaka declaration unequivocally demonstrate unexpected improved physical properties of homogeneous reflection of light of the product produced by the method claimed herein when compared with the closest prior art of the Kohlschutter et al. reference.

Proof of an unexpected improvement can rebut a prima facie case of obviousness. In re Murch, 175 USPQ 89 (CCPA 1972). Prima facie obviousness is a legal conclusion, not a fact. Therefore, facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion was reached, not against the conclusion itself. In re Eli Lilly & Co., USPQ 2nd 1741 (CAFC 1990).

In the present case, the proof of unexpected improvement set forth in the Tanaka declaration clearly rebuts any prima facie case of obviousness. Also, the facts established by the Tanaka declaration must be evaluated along with the facts upon which the Examiner bases the rejection. Applying this legal test, it is respectfully submitted that the rejection fails as a matter of law.

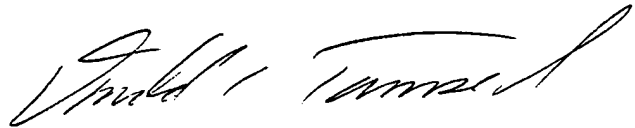
Consequently, the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

While it is recognized that an analysis under 35 U.S.C § 103 may not be applicable to a rejection under 35 U.S.C. § 102(b), it is believed to be proper in this case because the tests in the Tanaka declaration show that the product called for by the claims herein has properties different from those of the product disclosed in the Kohlschutter et al. reference. Therefore, it logically follows that these products are different. This difference also reinforces applicants interpretation of the Kohlschutter et al. reference discussed above.

Reconsideration is respectfully requested of the rejection of Claims 1-10, 13, 16-21, 24 and 27-29 under 35 U.S.C. § 103 as being unpatentable over Bernhard or Nakamura et al. or Noguchi in view of Kohlschutter et al. In this rejection the Examiner is relying on the secondary reference of Kohlschutter et al. which is discussed above. Since the Kohlschutter et al. reference neither anticipates nor renders unpatentably obvious the subject matter claimed in the present application as shown by the tests in the Tanaka declaration, it is respectfully submitted that this rejection likewise fails in view of the above authorities. Therefore, the Examiner would be justified in no longer maintaining this rejection. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing it is respectfully submitted that the application is now in condition for allowance. Early action and allowance thereof is respectfully requested. If there is any reason why the application cannot be allowed at the present time, the Examiner is requested to call the undersigned at the number listed below to resolve any problems.

Respectfully submitted
TOWNSEND & BANTA



Donald E. Townsend
Reg. No. 22,069

TOWNSEND & BANTA
1225 Eye Street, N.W.
Suite 500
Washington, D.C. 20005
(202) 682-4727

Date: May 22, 1996